

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.:

Group Art Unit:

Inventor: B. Arman

Filed: Concurrently

Title: Resonant Linear Motor  
Driven Cryocooler System

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In accordance with 37 CFR 1.51, 1.56 and 1.97 to 1.99, the following is a relevance statement on each citation listed on attached form PTO-1449, and is made of record to assist the Patent & Trademark Office in its examination of this application:

U.S. 5,129,232 – Minas et al. discloses a system whereby the vibration loads produced by a cryocooler are isolated from a superconducting magnet and cryostat through the use of flexible laminated copper connectors and rubber mounts. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 5,363,077 – Herd et al. discloses a magnetic resonance imaging system having a cryocooler penetration assembly and a superconducting coil assembly wherein the weight of the cryocooler penetration assembly is supported independent of the superconducting coil assembly which, together with flexible

connections, isolates the vibrations of the cryocooler coldhead from the superconducting coil assembly. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,374,617 – Bonaquist et al. discloses a pulse tube system wherein a product fluid such as hydrogen is preferably precooled and then liquefied, subcooled and/or densified by heat exchange with ultra cold gas generated by a pulsing compression wave which rejects heat into a cryogen fluid heat sink. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,378,312 – Wang discloses a pulse tube cryorefrigerator having integrated reservoirs and housing for a rotary valve, valve plate and drive motor. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,578,364 – Corey discloses a mechanical resonator for a thermoacoustic device which includes a member for mimicking dynamic

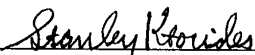
conditions at a position of the housing, and a linear suspension element suspending the member in the housing. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,604,363 – Corey et al. discloses a method for matching an acoustic load and an acoustic driver in a resonant acoustic system, and the acoustic system so formed, comprising a matching volume positioned between the acoustic driver and load that is substantially greater than a stroke volume of the driver. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,640,553 – Kotsubo et al. discloses a pulse tube refrigeration system having a pulse generator, a regenerator and a pulse tube, comprising a tapered work transfer tube interposed between the pulse generator and the regenerator. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

U.S. 6,644,038 – Acharya et al. discloses a pulse tube refrigeration system wherein the pulse tube working gas is cooled to a defined first stage temperature and is brought to a defined second stage temperature by operation of a regenerator and pulse tube, which are in flow communication through a cold heat exchanger, prior to providing refrigeration to a high temperature superconductor. There is no disclosure of a resonant linear motor driven cryocooler system wherein vibrations from the resonant linear motor are isolated from the cryocooler by work transfer piping comprising connecting tubing and preferably a dashpot and wherein the connecting tubing has a volume which exceeds the internal stroke volume of the resonant linear motor, and thus this patent neither discloses nor suggests the claimed invention.

Respectfully submitted,



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<b>Information Disclosure Citation</b> (Use several sheets if necessary)				Applicant Bayram Arman			
				Filing Date		Group	

U.S. PATENT DOCUMENTS													
Examiner Initial		Document Number							Date	Name	Class	Subclass	Filing Date if Appropriate
		5	1	2	9	2	3	2					
		5	1	2	9	2	3	2	7/1992	Minas et al.	62	51.1	
		5	3	6	3	0	7	7	11/1994	Herd et al.	335	216	
		6	3	7	4	6	1	7	4/2002	Bonaquist et al.	62	6	
		6	3	7	8	3	1	2	4/2002	Wang	62	6	
		6	5	7	8	3	6	4	6/2003	Corey	62	6	4-20-01
		6	6	0	4	3	6	3	8/2003	Corey et al.	62	6	4-20-01
		6	6	4	0	5	5	3	11/2003	Kotsubo et al.	62	6	11-20-02
		6	6	4	4	0	3	8	11/2003	Acharya et al.	62	6	11-22-02

FOREIGN PATENT DOCUMENTS															
		Document Number							Date	Country	Class	Subclass	Translation		
													Yes	No	

Other Documents (including Author, Title, Date, Pertinent Pages, Etc.)												

Examiner	Date Considered
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\* EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.